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REMARKS

Independent claims 1 and 8 have each been amended to more particularly point out and more particularly claim the subject matter that the applicant regards as his invention. Claim 1 as amended incorporates the subject matter of claim 2, which has been canceled without prejudice or disclaimer, and claim 8 as amended includes the subject matter of claim 9, which has also been canceled without prejudice or disclaimer. Additionally, claim 3 has been amended to depend from claim 1 instead of from claim 2, claim 10 has been amended to depend from claim 8 instead of from claim 9, and claims 5 and 12 have been returned to their previous dependent form in view of the withdrawal of the indication of their allowability.

All the claims have been rejected as obvious based upon the combination of the Ritter et al. '650 and Mihara et al. '733 references, and statements in the present specification. The examiner acknowledged that the Ritter et al. reference does not disclose the drum diameter to avoid plastic deformation of the cooling product that is wound on the drum. The Mihara et al. reference was relied upon as disclosing that feature.

The Ritter et al. reference is directed to a strip material heat treatment and cooling method and apparatus that includes a drum and one or more tension rollers 10 (see Ritter et al., Figures 1, 3, 4, 5, and 7; and col. 5, lines 13-17). The tension rollers are basically idler rollers, the position of which relative to the drum is regulated in order to control the tension in the material as it is either heated or cooled and winds around both the drum and the

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tension rollers. Significantly, as shown in the Ritter et al. drawing figures, and as they are used generally in other material handling contexts, the tension rollers around which the wire material passes have a considerably smaller outer diameter than the associated drum 6. As a result, the material would undergo a radical degree of bending as it passes around the small diameter tension rollers, the purpose of which is to regulate tension in the wire "to eliminate the danger that the wire will break in the event of either a deliberate interruption in operation or one caused by a fault." (see Ritter et al., col. 1, lines 58-60). The tension roller position relative to the drum is changed so that the tension in the material is relieved when it is sensed that the material tension exceeds a particular value (see Ritter et al., col. 2, lines 13-16) and "so that the thermal stability of the wire 18 is not exceeded and it is possible for the wire to contract, without breaking, in the event of sudden cooling" (Ritter et al., col. 3, lines 25-28). In that context, the phrase "thermal stability of the wire" means that the wire will not rupture due to excessive tension.

Apparently, such radical bending of the wire in the Ritter et al. arrangement is not of importance in a heat treating phase, where the material undergoes an annealing process, which essentially reduces the stress levels within the material and serves to relax the material so that the degree of bending is of no consequence, because the material is at the annealing temperature. But the Ritter et al. reference makes no mention whatsoever of mechanical influences on the wire product due to bending of the wire during a post-annealing cooling process. It thus is directed to a different problem, one

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involving a different process and different apparatus. Furthermore, the reference to wire cooling in claim 15 of the Ritter et al. reference makes no mention of drum or tension roller diameter, nor does the specification. And as earlier noted, the tension rollers as shown in the Ritter et al. drawings have a much smaller diameter than that of the drum, which would mechanically influence the cooling material by plastic deformation. Further, the Ritter et al. reference does not show or suggest any limitation whatsoever of the diameter of the curved path over which the material travels, nor does it even appreciate the adverse consequences that would ensue from the use of the small diameter tension rollers during a cooling process. Thus, the Ritter et al. reference neither appreciates the problem to which the present invention is directed, nor does not teach a solution to that problem. In fact, by the use of small diameter tension rollers it teaches away from the present invention as it is claimed in each of independent claims 1 and 8.

With regard to the Mihara et al. reference, it should first be noted that that reference does not disclose or suggest a cooling drum within a surrounding, closed housing having product inlet and outlet openings, as claimed in amended claims 1 and 8. It also does not disclose or suggest the use of a shielding gas atmosphere. Moreover, the Mihara et al. reference is directed to a different problem – to overcome the uneven heating or cooling of a strip, or the deformation of a strip that results from uneven heating or cooling (see Mihara et al., col. 7, lines 41–43). It does so by controlling the thermal strain in a roll shell, the mechanical strength of the roll shell, and the heat

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transmission of the roll shell (see Mihara et al., col. 7, lines 40-41).

Another major difference between the claimed invention and the Mihara et al. reference resides in the fact that the reference discloses only a single pass arrangement for the strip product to be cooled. That arrangement is clearly shown in Figures 2a and 3 of the Mihara et al. reference, in which a single wide strip overlies a major width portion of the drum surface and contacts the drum surface around an included wrap angle  $\theta$  of 180° or less. Thus, the material is not wound about the drum in a plurality of turns, as is claimed in each of amended independent claims 1 and 8. Therefore, in the Mihara et al. arrangement as it is shown and described it is not possible to control the degree of cooling by selecting the number of turns of the product to be cooled that are wound around the cooling drum.

Claims 3-7 each depend from amended claim 1, either directly or indirectly, and claims 10-14 each depend from amended claim 8, either directly or indirectly, and therefore the same distinctions as are noted above in connection with claims 1 and 8 apply with equal effect to those dependent claims. Further, the dependent claims contain additional recitations that further distinguish the invention as so claimed from the disclosures of the references relied upon.

As pointed out above, each of the references relied upon discloses a method and an apparatus that is different from those now claimed herein. And the references each disclose different methods and different apparatus. But even if the references were before one having only ordinary skill in the art, it

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would not be apparent how they would or should be combined to arrive at a method and an apparatus as now claimed. There is no guidance in either of the references that would lead one to combine them as the examiner has done. It is not apparent which parts of which reference are to be combined with which parts of the other reference, and which parts of the references are to be ignored or discarded. It is submitted that the only motivation for combining the references in the manner suggested by the examiner is the present disclosure. And to use as a road map or as a template the teachings of the present invention to assemble references that are directed to different problems, and that teach different solutions, and to aid in picking and choosing particular parts of particular references that allegedly can be combined to render obvious that which is being claimed is an improper hindsight reconstruction of the prior art while having applicant's invention in mind. But even more important, it amounts to using against an inventor that which only he has taught.

Based upon the foregoing amendments and remarks, the claims as they now stand in the application are believed clearly to be allowable in that they patentably distinguish over the disclosures contained in the references that were cited and relied upon by the examiner, whether those references be considered in the context of 35 U.S.C. § 102 or of 35 U.S.C. § 103. Consequently, this application is believed to be in condition for allowance, and reconsideration and reexamination of the application is respectfully requested with a view toward the issuance of an early Notice of Allowance.

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The examiner is cordially invited to telephone the undersigned attorney if this amendment raises any questions, so that any such question can be quickly resolved in order that the present application can proceed toward allowance.

Respectfully submitted,



March 11, 2009

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